Appendix B
TECHNICAL NOTES

TECHNICAL NOTES

Technical notes have been prepared to identify data sources and to discuss key data analysis issues. Notes relating to the Background (Chapter 2) and State Health Expenditure Accounts (Chapter 3) are presented separately.

Chapter 2 Technical Notes for Table Data

1. U.S. Department of Commerce, Census Bureau. "Population Estimates for the U.S., Regions, and States by Selected Age Groups and Sex: Annual Time series, July 1, 1990 to July 1, 1998 (includes revised April 1, 1990 census population counts)." Website http://www.census.gov/population/estimates/state/5age989.txt. Accurate as of July 15, 1999. Regional estimates derived from Maryland Office of Planning, "1998 Population for Maryland Jurisdictions," September, 1999. Website: http://www.op.state.md.us./MSDC.

2. U.S. Department of Commerce, Census Bureau. "Population Estimates for States by Race and Hispanic Origin: July 1, 1998." Website http://www.census.gov/population/estimates/state/srh/srhus98.txt. Accurate as of September 15, 1999.

3. U.S. Department of Commerce, Census Bureau. Current Population Survey, Federal Electronic Research and Review Extraction Tool (FERRET), July 1998. Website http://ferret.bls.census.gov/cgi-bin/ferret.

4. Martin JA, Smith BL, Mathews TJ, Ventura SJ. "Births and Deaths: Preliminary Data for 1998." *National Vital Statistics Reports*, (47:25). Hyattsville, Maryland: National Center for Health Statistics, 1999. NOTE: Rates reported in Table 1 are not age-adjusted.

5. Maryland Department of Health and Mental Hygiene, Division of Health Statistics. *Maryland Vital Statistics 1998 Preliminary Report*. Baltimore, Maryland, 1998. NOTE: Rates reported in Table 1 are not age-adjusted.

6. Centers for Disease Control and Prevention, National Center for Health Statistics, National Immunization Survey. "Table 2a. Estimated Vaccination Coverage with Individual Vaccines Among Children 19-35 Months of Age by Census Division and State - United States - National Immunization Survey, 1998." Website http//www.cdc.gov/nip/coverage.

7. Centers for Disease Control and Prevention. *1998 Behavioral Risk Factor Surveillance Summary Prevalence Report.* Atlanta, Georgia. June 18, 1999. NOTE: U.S. estimate includes Puerto Rico.

8. Centers for Disease Control and Prevention. *HIV/AIDS Surveillance Report*, 1998 (10:2): Table 2, p. 8; rate reported for U.S. includes the 50 states and the District of Columbia, but excludes U.S. dependencies, possessions, and associated nations. Regional estimates derived from Maryland Department of Health and Mental Hygiene, AIDS

Administration. "AIDS Cases by Maryland County Diagnosed in 1998 and Reported through March, 1999." Baltimore, Maryland, 1999.

9. Campbell, JA, U.S. Bureau of the Census, Current Population Reports, Series P60-208. *Health Insurance Coverage: 1998*. Washington, D.C.: U.S. Government Printing Office, 1999.

10. Lamphere J, Brangan N, Bee S, Griffin K. *Reforming the Health Care System: State Profiles 1999*. Washington, D.C.: Public Policy Institute/American Association of Retired Persons, 1999 (forthcoming).

11. MHCC calculations based on (1) population estimates from citation no. 1, (2) percent insured from citation 9, (3) national number enrolled in HMOs *from The InterStudy Competitive Edge, 9.2; Part II: HMO Industry Report*, Minneapolis, MN, 1999, and (4) Maryland residents enrolled in HMOs estimated by MHCC from Maryland Insurance Administration annual filings adjusted to include residents in HMO contracts located outside of Maryland.

12. U.S. Department of Commerce, Census Bureau. "Poverty in the United States - 1998." Website: http://www.census.gov/hhes/poverty/poverty98.

13. **National**: U.S. Department of Labor, Bureau of Labor Statistics. Labor Force Statistics from the Current Population Survey. "Unemployment Rate - Civilian Labor Force, Age 16 Years and Older, Seasonally Adjusted." Website http://www.bls.gov/news.release/cpshome.htm. NOTE: Monthly statistics were averaged to produce yearly figure. **State**: Maryland Department of Labor, Licensing, and Regulation. "Maryland Civilian Labor Force, Employment and Unemployment by Place of Residence - 1978-1998." Website http://www.dllr.state.md.us/lmi/78.htm. **Counties**: Maryland Department of Labor, Licensing, and Regulation. "Regional Data - 1990 to 1998 Annual Averages Civilian Labor Force, Employment and Unemployment by Place of Residence." Website http://www.dllr.state.md.us/lmi/9097avg.htm.

14. **National and state**: U.S. Department of Commerce, Economic and Statistics Administration, Bureau of Economic Analysis. Regional Accounts Data, State Personal Income. Website http://www.bea.doc.gov/bea/regional/spi/pcpi.htm. **Counties**: Maryland Office of Planning, Research and State Data Center (Bureau of Economic Analysis data).

15. U.S. Agency for Health Care Policy and Research, Center for Cost and Financing Studies, 1996. *MEPS IC-001: 1996 Employer-Sponsored Health Insurance Data*. **Total premium**: "Table 2U: 1996 Medical Expenditure Panel Survey, Insurance Component." Refers to the average family premium paid by private sector establishments that offer health insurance for family coverage per enrolled employee. Excludes temporary and contract workers. If more than one family rate was offered, the cost for a family of four was collected. **Employee contribution**: "Table 2V: 1996 Medical Expenditure Panel Survey, Insurance Component." Refers to the average contribution by an enrolled employee, excluding temporary or contract workers, for family coverage at private-sector establishments that offer health insurance. If more than one family rate was offered, the cost for a family of four was collected.

16. MHCC calculations based on: (1) American Medical Association Physician Masterfiles; (2) American Osteopathic Association data; and (3) Bureau of the Census State and County Population Estimates; all contained in U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions' *Area Resource File: February 1999 Release*.

17. American Medical Association. "Appendix II, Table 2: Programs and Resident Physicians in ACGME-Accredited and in Combined Specialty Graduate Medical Education (GME) Programs, August 1, 1998, by Number per 100,000 and by Region and State," *Journal of the American Medical Association* (282:9), pages 895-896. Chicago, September 1, 1999. NOTE: Total population numbers include the District of Columbia and Puerto Rico.

18. Morgan K, Morgan S, Quitno N, Eds. *Health Care State Rankings 1999*, 7th Edition. Lawrence, KS: Morgan Quitno Press, 1999. NOTE: Primary care physicians, p. 437; Physician specialists, p. 445; Phyisican assistants, p. 481; Occupancy rate in community hospitals, p. 212; Average stay in community hospitals, p. 211; Admission to community hospitals, p. 208; Outpatient visits to community hospitals, p. 213; Emergency outpatient visits to community hospitals, p. 214; Surgical operations in community hospitals, p. 7. Population estimates derived from U.S. Department of Commerce, Census Bureau. "Total Resident Population on July 1, 1997." Website http://www.census.gov/population/estimates. Accurate as of October, 1998.

19. United States Department of Health and Human Services, Health Care Financing Administration, 1999. Medicare participation Rates by State, January, 1999. Unpublished table provided courtesy of Public Policy Institute, AARP. NOTE: Refers to the percentage of physicians and other health care practitioners that have enrolled in the Medicare participating physician program for 1999.

20. American Health Care Association. *Facts and Trends: The Nursing Facility Sourcebook, 1999*. Washington, D.C. 1999. NOTE: Refers to the median occupancy rate among federally certified nursing facilities.

21. Novartis Pharmaceuticals Corporation, 1999. *Pharmacy Benefit Report: Facts and Figures*. NOTE: Refers to the total number of retail prescription drugs sold in 1998 divided by the entire state population. It includes prescription drugs purchased at retail pharmacies.

22. Maryland Department of Health and Mental Hygiene, Division of Health Statistics. *Maryland Vital Statistics Annual Report 1997*. Baltimore, Maryland, 1999.

23. Health Care Financing Administration. "Medicare County Enrollment as of July 1, 1998." Website: http://www.hcfa.gov/stats/enroll98.html. Information accurate as of March, 1999.

24. Maryland Health Care Commission calculations based on data from Maryland Department of Health and Mental Hygiene, Medical Assistance Program, Health Services Analysis and Evaluation Administration. "Medical Assistance Program, Table1: Average Number of Enrollees by Residence of Enrollee and Eligibility Category: Fiscal Year 1998," and "Medical Assistance Program, Table 1: Average Number of Enrollees by Residence of Enrollee and Eligibility Category: Fiscal Year 1999."

25. Maryland Department of Health and Mental Hygiene, Office of Health Care Quality. *Monthly Bed Recap*, February, 1999. Baltimore, Maryland.

Chapter 3 Technical Notes

The following section describes the data sources and methodologies used to develop Maryland's health expenditure accounts. Each data source is presented separately in the column order in which it appears on the health expenditure account tables.

Medicare (Indemnity & HMO)

The Health Care Financing Administration (HCFA), Office of Strategic Planning (OSP), provided Maryland-specific Annual Summary Control totals as reported from HCFA's Office of the Actuary (OAC). These control totals represent payments made by Medicare on behalf of Maryland residents for calendar years 1997 and 1998 separately. The control totals were split into Managed Care versus Indemnity estimates by subtracting the dollars associated with Maryland Medicare Managed Care as determined by HCFA's contract reports (see Medicaid, Indemnity and HMO column). Indemnity expenditures were determined to be "directly billable" versus "lump-sum adjustments or interim payments" based upon instructions provided by OAC and OSP. Indemnity Expenditures determined to be "directly billable" were allocated to SHEA row elements either by: (1) determining payments made from the claims files (Inpatient, Outpatient, Physician, Other Professional, and Other): or (2) using the proportional amount as reported by OSP for the Maryland-specific table in the 1997 Statistical Supplement (Home Health, Skilled Nursing Facilities (SNF), and Hospice, the latter being added to Inpatient Hospital). The "lump-sum adjustments or interim payments" were then accounted for in four of the SHEA rows as OAC instructed (Inpatient Hospital, Outpatient Hospital, SNF, Home Health). These expenditures were distributed to Maryland regions by using the overall Medicare population's regional distribution and the cost differentials between regions as reflected in Medicare+Choice rates. Administration costs for Medicare indemnity were estimated by applying the Medicare program administration proportion from the National Health Expenditure report for 1997 to all Medicare expenditures (indemnity and managed care) reported in the SHEA. Medicare enrollment figures were taken from the Medicare enrollment report and represent an enrollment as of December 1998.

Medicare HMO expenditures were developed from a combination of HCFA sources, including HCFA's Managed Care Market Penetration Reports and Medicare Managed Care Contract Reports. A cost per enrollee was estimated by using reported national expenditures in the Contract Report. This per capita cost was applied to a count of Maryland Medicare managed care beneficiaries to estimate Medicare managed care expenditures in Maryland. The expenditure estimate was distributed to Maryland regions by using the overall Medicare managed care population's regional distribution and the cost differentials between regions as reflected in Medicare+Choice rates. Administration costs were estimated by averaging the administrative proportions from Maryland's private HMOs that received Medicare capitation payments from HCFA in 1998. Medicare managed care enrollment figures were taken from HCFA's market penetration reports and represent an enrollment as of December 1998.

Medicare categories of service comprising the SHEA row elements were defined either directly from claims, imputed using proportions defined from OAC, or from the Monthly Managed Care Contract Reports (HMO). Inpatient hospital (short and long-stay), outpatient hospital (all outpatient hospital bills), physician (all medical specialties), other professional (non-physician specialties), and other (durable medical equipment (DME), ambulatory surgical centers (ASC), and supplies) were determined directly from claims. Hospice (placed in Inpatient), home health, and skilled nursing facilities were imputed using proportions determined by OAC. HMO capitation payments were determined as described above. No prescription drug data are reported here.

Medicaid (Indemnity & HMO)

All data related to the Medicaid program were provided by Maryland's Department of Health and Mental Hygiene (DHMH). Fiscal year Medicaid management information system (MMIS) claims data for 1998 and 1999 were averaged to develop estimates of Medicaid indemnity expenditures for calendar year 1998. MMIS data were reported by county, so regional Medicaid indemnity expenditures were calculated from county-level data. Administrative costs for the Medicaid indemnity program were also provided by DHMH. Medicaid enrollment figures, by eligibility category, were provided by DHMH and were an average of FY1998 and FY1999 enrollment.

Medicaid managed care payments were taken directly from DHMH data and reflect capitation payments made to all Managed Care Organizations (MCOs) and Health Maintenance Organizations (HMOs) in calendar year 1998. Medicaid managed care spending was allocated to regions based on the county distribution of these expenditures detailed in the MMIS reports. Administrative costs were estimated by averaging the administrative proportions from private HMOs that received Medicaid managed care payments from HCFA in 1998. Medicaid managed care enrollments were taken from DHMH data and represent an average of the Medicaid managed care enrollment for each month in 1998.

Medicaid categories of service comprising the SHEA row elements were defined directly from data received by DHMH. Inpatient hospital services include acute care, rehabilitation, specific intermediate care and residential treatment for addictions. Outpatient hospital services include acute care, rehabilitation, and psychiatric day care. Physician services include all medical specialty services, except dental. Other professional services include non-physician specialties, dental, and ambulance services. Other services include DME and supplies. Home health care includes waivers, medical and personal day care, therapy, and private duty nursing care. Nursing home includes long term care, non-addiction related intermediate care, and SNF. Capitation payments are rate determined for MCO and HMO Medicaid enrollees. Prescription data were directly obtained from DHMH.

Other Government

Total expenditures represent seven distinct government categories: Division of Corrections, CHAMPUS, Veteran's Administration, State Hospitals, DHMH programs (including Federal grants to DHMH

programs), the AIDS Insurance Program, and the Medical Pharmacy Assistance Program. The Division of Corrections (DOC) provided overall payment amounts to be made in a specific fiscal year. Expenditures were allocated to SHEA rows based on the private indemnity distribution, with some proportional adjustments to reflect service restrictions in the DOC policy. Expenditures were distributed to three regions using the distribution of the State jail population as reported through the Department of Public Safety. CHAMPUS data on overall expenditures were distributed to service categories using proprietary indemnity claims data obtained for this project. CHAMPUS expenditures were distributed to regions using the distribution of the overall State population. The Department of Veteran's Affairs (VA) provided State-level expenditure data by service category. Expenditures were distributed to regions based on the distribution of the VA population in the State. Maryland State budget documents were used to develop expenditures for State hospitals (inpatient/outpatient psychiatric, chronic care, nursing home, and ICF/MRs), DHMH programs (including local health department contributions to these programs), and Federal grants supporting DHMH programs. These expenditures were distributed to regions using the distribution of the Maryland Medicaid population. Expenditures for two programs funded entirely with State funds – the Maryland Pharmacy Assistance Program and the AIDS Insurance Assistance Program – were developed from data obtained from DHMH. Administrative expenditures were calculated for the entire Other Government column using the administrative proportion for State and local funds from HCFA's 1997 National Health Expenditure Accounts.

Private Sector Indemnity & Order Third-Party Payers

Total private indemnity payments for 1998 incurred claims for Life and Health, Property and Casualty, and Nonprofit companies were derived from annual filings submitted to the Maryland Insurance Administration (MIA). These expenditures formed the base against which additional adjustments were made for: (1) expenditures by companies that are self-insured; and (2) expenditures for Maryland residents employed in the District of Columbia and therefore not included in Maryland group contracts. Finally, estimated administrative costs were added based on information from the MIA. Once total expenditures were developed, the proprietary indemnity claims data obtained for this project were used to allocate total expenditures to service categories, and the distribution of the State's indemnity population was used to distribute expenditures to regions.

Enrollment in private indemnity plans was determined by subtracting the State's uninsured population, Medicaid enrollment (excluding dually enrolled and individuals in partial coverage programs), Medicare enrollment (as reported by HCFA), CHAMPUS enrollment, and private HMO enrollment.

Private-Sector HMO

Private-sector HMO expenditures were developed by aggregating data from all Maryland HMOs' 1998 financial submissions made to the MIA. Service category distributions were estimated for each HMO individually based on its reported information and then aggregated across all the HMOs. The estimate of total expenditures was then adjusted for: (1) expenditures by companies that are self-insured and therefore not captured in the filings; and

(2) expenditures for Maryland residents employed in the District of Columbia and therefore not included in Maryland group contracts. Expenditures were distributed to regions based on the InterStudy data and enrollment information, which was also available in the annual financial submissions.

Each HMO that filed with the MIA provided service-level detail of expenditures. When possible, these services were mapped directly to standard SHEA row elements. Inpatient hospital services that were allocated directly include acute care, inpatient emergency care, and reinsurance recoveries. Outpatient hospital services that were directly allocated include ambulatory acute care, outpatient emergency care, and outpatient laboratory. Physician services that were directly allocated include all medical specialty services, outside referrals, professional emergency care, and mental health. Other professional services that were directly allocated include non-physician specialties, dental, and physician mental health services, and ambulance. Other services include DME and supplies. Home health, nursing home, and prescription data was directly obtained from the filings. For each HMO, services that could not be collected directly were assigned to SHEA rows using a two-step process. If an HMO had no reported expenditures in specific SHEA categories, these categories were imputed using the distribution of all HMOs reporting in those categories. If an HMO had additional funds to be allocated after the first step, the remaining funds were distributed to outpatient, other professional, nursing home, home health and other services using the specific HMOs distribution for those categories, after the first allocation process.

Coinsurance and Deductibles

Medicare coinsurance and deductible (C&D) amounts were estimated based on their relationship to total program payments that occurred in the 1998 Medicare claims analyses or proportions used in earlier methodologies. Because an estimated 67 percent of Medicare beneficiaries have supplemental health insurance to cover their C&D and another 17 percent have Medicaid coverage, it was assumed that this proportion of total coinsurance and deductible expenditures was already accounted for in private insurance and Medicaid expenditures. Accordingly, it was deducted from estimated total C&D payments to prevent double accounting of these expenditures. It was assumed that Medicare managed care enrollees do not pay coinsurance and deductibles. C&D expenditures were distributed to regions based on the distribution of the overall Medicare population.

Private-sector coinsurance and deductibles were developed using claims for Maryland residents from the proprietary claims data. The proportion of total patient liability to total allowed charges for each service category was determined and then applied to total State private-sector indemnity expenditures. These expenditures were calculated using regional data for private indemnity coinsurance and deductible amounts and using an overall State average for private HMO coinsurance and deductibles.

Uninsured Services

Uninsured spending, a component of total out-of-pocket spending, represents expenditures by individuals with no coverage and by those with

policies that do not cover all the services they consume. To estimate uninsured spending, Medicare and private coinsurance and deductibles were subtracted from total out-of-pocket spending (see Total Out-of-Pocket column) for each service category.

Total Out-Of-Pocket Total out-of-pocket expenditures for Maryland were assumed to be the same proportions as those reported in the National Health Expenditures Accounts for personal health expenditures. Proportions were calculated by service category. These proportions were applied to total regional expenditures (calculated as the sum of the first seven columns of the SHEA, by region) to develop estimates of total out-of-pocket costs.

Comparisons with the 1997 Annual Report

This year's SHEA methodology is largely consistent with that of the 1997 SHEA, with the following exceptions:

1. Medicare indemnity expenditures by type of service and source of payment were directly estimated from claims data.

2. New data sources were used to describe the distribution of private indemnity and HMO expenditures by type of service and the proportion of such expenditures paid out-of-pocket by Maryland residents.

3. The Division of Corrections component of the other government sector distributed expenditures only to those regions that housed inmates under the Department of Public Safety.

These refinements were incorporated into both the 1997 and 1998 SHEA estimates to ensure comparability between years. Therefore, in most cases, the reported differences should be reflections of actual program changes.